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SPECIFICATION FOR NUMBER PRINTING MACHINES, HAND-OPERATED

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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September 1982

Indian Standard

SPECIFICATION FOR NUMBER PRINTING MACHINES, HAND-OPERATED

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Indian Standard

SPECIFICATION FOR NUMBER PRINTING MACHINES, HAND-OPERATED

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 10 November 1981, after the draft finalized by the Fasteners for Consumer Goods Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

0.2 This standard specifies two types of number printing machines, namely, Type 1, having automatic number advancing, and Type 2, having manual number advancing.

0.3 While formulating this standard, considerable assistance has been derived from GG-N-775C 'Numbering Machines, Office Type, Hand-operated,' issued by the Federal Supply Service, U.S.A.

0.4 This standard contains clauses which call for agreement between the purchaser and the supplier and which permit the purchaser to use his option for selection to suit his requirements. The relevant clause are **3.1.1.1**, **4.2**, **4.3** and **7.1**.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the functional requirements and performance tests of hand-operated number printing machines for use in printing presses, binding houses, offices, etc.

2. TERMINOLOGY

2.1 For the purpose of this standard, the nomenclature as indicated in Fig. 1 shall apply.

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*Rules for rounding off numerical values (*revised*).

3. TYPES

3.1 The number printing machines shall be of the following types.

3.1.1 *Type* 1 *Automatic Number Advancing*

3.1.1.1 The number setting device shall contain zero-setting and at least one or more than one of the settings, as defined in Table 1 or as agreed to between the purchaser and the supplier. However minimum consecutive number advancing shall not be less than 9 999. If any other number advancing (not mentioned in Table 1) is required, this may also be made as agreed to between the purchaser and the supplier.

TABLE 1 MOVEMENT OF TYPE 1 MACHINE

Setting Number	Movement
0	When the same number is repeated any number of times.
1	When consecutive numbers are printed.
2	When any pre-set number is repeated twice and then the machine advances to the next consecutive number.
3	When any pre-set number is repeated thrice and then the machine advances to the next consecutive number.
4	When any pre-set number is repeated four times and then the machine advances to the next consecutive number.

3.1.2 *Type* 2 *Manual Number Advancing* (*Lever-operated*)

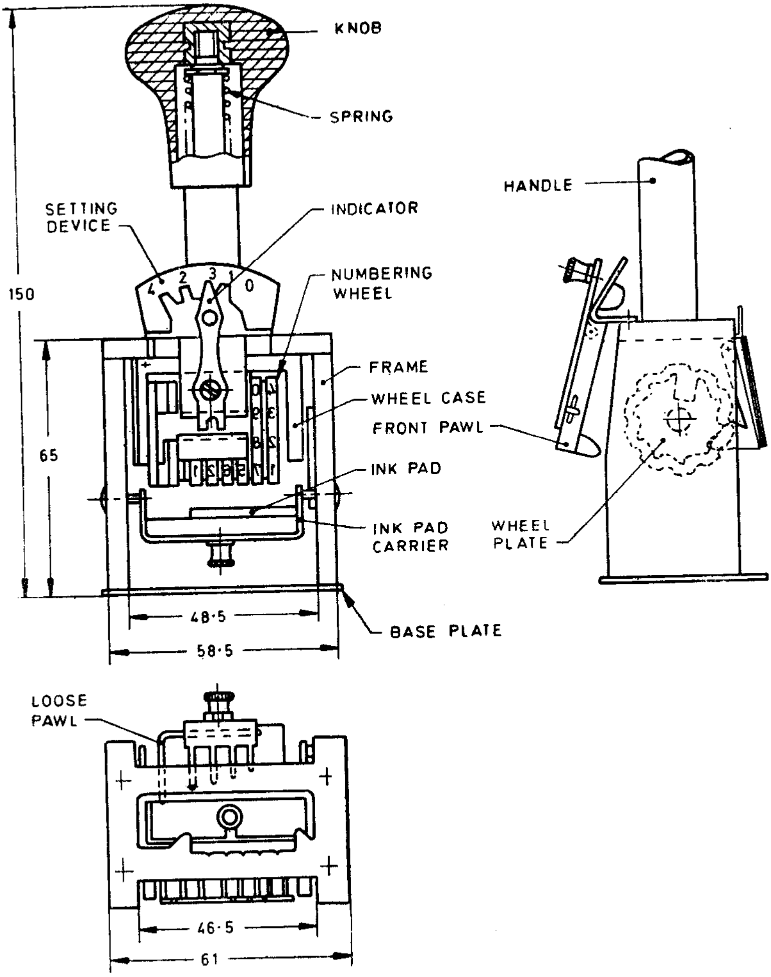
3.1.2.1 In this machine, advancing of number is done manually or by a lever.

4. SHAPE AND DIMENSIONS

4.1 The shape and nominal dimensions of Type 1 number printing machines shall be as shown in Fig. 1.

4.2 The number printing machine Type 1 may also be manufactured to the shape and dimensions other than those mentioned in Fig. 1, subject to the agreement between the purchaser and the supplier.

4.3 Type 2 number printing machines may be manufactured to any shape and dimension as agreed to between the purchaser and the supplier.



All dimensions in millimetres.

FIG. 1 NUMBER PRINTING MACHINE, TYPE 1

5. MANUFACTURE, WORKMANSHIP AND FINISH

5.1 The number printing machine shall generally consist of a frame, housing base plate, numbering wheels, operating mechanism, handle and inking pad. The machine shall function properly, when tested as specified in **6**. All machines shall print legible impressions for life cycle without mechanical or structural failure, when tested as specified in **6.6**. The design of Type 2 machine shall enable user to operate the machine by hand movement.

5.2 The frame, housing and base plate shall be manufactured from sheet steel, cast metal or a combination of the two. Alternatively, the frame may be made of suitable plastics or any other suitable material. The parts shall be of such design, construction and strength as to ensure that the assembled parts will securely hold together and the plastics part shall not break or crack, when tested as specified in **6**. The machine shall be of such design as to permit an unobstructed view of the printing opening in the base plate when the machine is in operating condition with the plunger raised. The printing opening in the base plate shall be equipped with a guide to indicate the printing line.

5.3 The type wheels shall be made of metal, alloy or any other suitable material, so as to ensure compliance with performance requirements and tests given in this standard. Each wheel shall contain the digits 0 to 9. Digit faces shall be unbroken, of uniform thickness of line, free from dents and burrs, and shall not be knife-edged. The wheels shall permit adjustments to print the desired figure.

5.4 For Type 1 machines, a mechanical setting device to obtain the desired movements shall be provided. The selected or set movements shall be manually set and the setting shall not change when tested for performance as specified in **6**. The setting shall be permanently indicated and visible with the machine in printing.

5.5 The plunger handle shall be made of smoothly finished steel or suitable hardwood or plastics or any other suitable material and shall be provided with a holding knob.

5.6 The inking pad shall be made of one-piece felt or any other suitable material, which shall be readily accessible for inking and shall be replaceable.

5.7 Each machine shall be furnished with a stylus or other appropriate device for manual advancing of individual wheel.

5.8 For Type 2 machines, the operating mechanism shall be manual or lever-operated to advance the wheels. When the machine plunger handle is in the released position, the lever (in case of lever-operated machines) shall advance the wheels in proper consecutive order, that is one numeral for each operation of the lever, when tested as specified in **6.4**. The number to be printed in any one operation shall automatically come in contact with the ink pad, immediately preceding each stroke of the machine. The lever shall be smoothly finished and shaped to permit comfortable operation.

6. PERFORMANCE TEST

6.1 Samples of number printing machines shall be subjected to the tests specified in **6.2** to **6.6** The inking pad of each sample shall be inked in accordance with the manufacturer's instruction. The printing shall be performed on a cream laid and cream wove paper or white printing paper conforming to IS : 1848-1971*. The pressure required for operating the number printing machine shall not be more than 15 N.

6.2 Legibility of Printing, Type 1 and Type 2 Machines — The machines shall be operated to print 10 impressions within a period of 10 seconds. Ten, such operations shall be carried out with different permutations and combinations of number of digits in the wheels. All such impressions shall be sharp, of uniform density, free from impressions other than those of the type faces, free from excess ink and the digits shall be in line.

6.3 Consecutive Number Printing, Type 1 Machine Only — The machine shall be set at 'Consecutive' movement and operated to print the numbers 1 through 10, and thereafter the unit shall be operated and set so that each wheel is indexed by the previous wheel through each numeral on the wheel. Advancing may be accomplished by setting the wheel preceding the wheel to be advanced on the numeral 8 and advancing it by operating the machine to the numeral 1. For example, in testing the 'tens' wheel, the first two wheels shall be set at the following numbers: 18, 28, 38, 48, 58, 68, 78, 88 and 98, and the machine operated until the following numbers appear, in respective order: 21, 31, 41, 51, 61, 71, 81, 91 and 101. The numbers set for testing the 'hundreds' wheel would likewise be 198, 298, 398, etc, and the remaining wheels shall be tested in a similar manner.

6.4 Manual Number Advancing, Type 2 Machine Only — A Type 2 machine shall be tested in the same way as a Type 1 machine (*see* **6.3**) except that number advancing shall be accomplished by manual or hand movement. Sufficient numbers shall be repeated to determine that advancement is accomplished only by operation of the lever, or by hand movement.

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*Specification for writing and printing papers (*first revision*).

6.5 Movement Test, Type 1 Machine Only — The machine shall be tested for following cycles as specified in Table 2 for each setting to check proper advancement of numbers according to adjustment in setting device (*see* **3.1.1.1**). A cycle shall consist of moving the handle down to the position where the number is printed legibly and has returned to the original, position.

TABLE 2 MOVEMENT TEST CYCLES FOR DIFFERENT SETTINGS

SETTING NO. (1)	NO. OF CYCLES (2)
0	5
1	10
2	20
3	30
4	40

6.6 Life Test — The number printing machines shall be put into operation to print legible number of cycles specified in Table 3. A cycle shall consist of moving the handle down once to the position where the number is printed legibly, and returned to the original position. Total time taken for one cycle shall not exceed 2 seconds, but the testing may not be continuous.

TABLE 3 LIFE CYCLES OF NUMBER PRINTING MACHINE AT DIFFERENT SETTINGS

TYPE OF MACHINE	NO. OF SETTING	NO. OF CYCLES
Type 1	0	5 000
	1	10 000
	2	20 000
	3	30 000
	4	40 000
Type 2	Repeat same number	20 000

After completion of life cycle, the machine shall again satisfy the requirement as specified in **6.2**.

7. SAMPLING

7.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling procedure as given in Appendix A shall be followed.

8. MARKING AND PACKING

8.1 Each number printing machine shall be legibly and permanently marked with the following:

a) Manufacturer's name or initials or registered trade-mark;
b) Model number to denote type, setting device and number of wheels; and
c) Serial number of machine.

8.1.1 No marking shall come on top of knob of the handle.

8.1.2 The number printing machine may also be marked with the ISI Certification Mark.

NOTE — The use of ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the rules and regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI Marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8.2 Each machine shall be packed in close fitting box, containing spare ink pad, stylus, ink and manufacturer's instruction for use and proper maintenance of the machine. Each box shall be duly wrapped and sealed in polyethylene cover. The box shall be legibly and permanently printed giving all the necessary informations as specified in **8.1** and also the date or month and year of manufacture. Each box shall be secured to prevent accidental opening.

APPENDIX A

(*Clause* 7.1)

SAMPLING AND CRITERIA FOR CONFORMITY OF NUMBER PRINTING MACHINES, HAND-OPERATED

A-1. LOT

A-1.1 In a consignment all the hand-operated number printing machines of the same type manufactured in the same factory under similar conditions of manufacture shall be grouped together to constitute a lot.

A-1.2 The number of hand-operated number printing machines to be selected from each lot shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table 4.

TABLE 4 SAMPLE SIZE AND ACCEPTANCE NUMBER

(*Clauses* A-1.2 *and* A-2.2)

Lot Size (1)	Sample Size (2)	Acceptance Number (3)
Up to 100	8	0
101 to 300	13	0
301 to 500	20	1
501 to 1 000	32	2
1 001 and above	50	3

A-1.2.1 These machines shall be selected from the lot at random. In order to ensure the randomness of selection, procedures given in IS : 4905-1969* may be followed.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 All the hand-operated machines in the lot shall be examined for workmanship and finish and the defectives may be removed.

A-2.2 All the hand-operated machines selected from the lot at random according to col 1 and 2 of Table 4 shall be examined for the performance tests given in **6.2** to **6.5**. A machine failing to satisfy any of the requirements shall be termed as defective. The lot shall be considered as conforming to the requirements if the number of defectives is less than or equal to the corresponding acceptance number (*see* col 3 of Table 4); otherwise the lot shall be rejected.

A-2.3 The lot which has been found as conforming to the performance requirements given in **6.2** to **6.5** shall then be tested for life test (*see* **6.6**). For this purpose, 5 hand-operated machines shall be selected from the lot at random and subjected to this test. The lot shall be considered as conforming to the life test requirement if all the machines pass in this requirement.

A-2.4 The lot shall be considered as conforming to the requirements if **A-2.2** and **A-2.3** are satisfied.

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*Methods for random sampling.